

A pilot study into the prevalence of ophthalmic disease in the Indian population of Southall

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Summary

A pilot study was carried out to determine the prevalence of ophthalmic disease in the Indian community of Southall and to ascertain the best methods applicable for a larger formal study. Three sites were chosen for the study, a Sikh gurdwara, a mosque and a Hindu temple. The subjects were volunteers aged 30 years and over who had visited the appropriate place of worship at least twice in the previous month. A total of 184 subjects were examined. The prevalence of blindness was 2.7% by the World Health Organization (WHO) criteria, while 9.8% had unocular blindness. The prevalence of glaucoma and ocular hypertension was 2.7% and 7%, respectively. Of the 184 subjects examined, 58% had cataract and 3.8% had age-related maculopathy. The prevalence of visually disabling trachomatous eye disease was 9.7%. The prevalence of diabetes mellitus was 17.9%, and that of hypertension 22.8%. This small study suggests that people with origins from the Indian subcontinent have a higher prevalence of ophthalmic disease than the Caucasian population.

Introduction

Epidemiological data on the prevalence of ophthalmic disease in Indians is almost non-existent, whether from the Indian sub-continent itself or the UK. Most work has been concentrated either on a single disease entity, usually cataract, or on reporting the incidence of various eye diseases from hospital statistics. In contrast, data on Caucasians and Afro-Caribbean populations abound in the literature¹⁻³. There is a large immigrant population from the Indian sub-continent which has settled permanently in the UK. Most of this population immigrated during the late 1950s to early 1960s as a labour force in the British economy and now falls into an age group where the prevalence of ophthalmic disease is likely to be high. On an anecdotal basis, Indians living in Britain have a higher prevalence of eye disease; there are scarce data available on this subject.

Subjects and methods

The study was conducted in the Southall area of London, which has one of the highest concentrations of Asians originating from the Indian sub-continent.

A total of 184 subjects aged 30 years and over were examined at three different sites. The sites chosen

were a Sikh gurdwara, a Muslim mosque and a Hindu temple. At the gurdwara and mosque, 61 people from each place were examined while at the Hindu temple 62 subjects were seen. The criteria for inclusion in the study were that the subjects should be 30 years or older, having attended the appropriate place of worship at least twice in the previous month, and a willingness to be examined.

A questionnaire asking for residential details, personal and family medical history, and dietary habits was completed for each subject.

Distance binocular and unocular visual acuities were tested with the subjects' usual spectacles using the 6 m Snellen chart, and the unocular visual acuity was repeated with a pin hole if it was found to be less than 6/9. The pin hole visual acuity was retested at 3 m if it was less than 6/60.

The central 25° visual fields of both eyes were tested with an automated tangent screen central visual field screener, using the screening strategy which is 4-6 dB brighter than threshold (Takagi ATS 85) in all subjects. The anterior segments were examined using a slit lamp and intraocular pressure was measured with the Goldmann applanation tonometer with slit lamp. All subjects had gonioscopy with the Goldmann one mirror gonioscopes. The pupillary reactions were then recorded and the pupil dilated with tropicamide 1%. Fundoscopy was performed with a Volk aspheric 90 dioptre lens. Lens opacities were assessed according to the Framingham criteria; presence of lens opacification with visual acuity less than 6/9. The ophthalmic examination was carried out by one ophthalmologist with 10% being checked by another ophthalmologist.

Results

A total of 184 people were examined in near equal numbers at each site. At the gurdwara and the temple, approximately equal numbers of men and women, while at the mosque only one woman agreed to be examined.

Of the 184 people examined, six were born in Africa, and the rest in north-western India and Pakistan. The length of stay in the UK ranged from 1 year to 38 years with a mean of 19.4 years.

Blindness. There were five cases of blindness (using WHO criteria for blindness of visual acuity less than 3/60 in the better eye), giving a prevalence of 2.7%. Two cases were attributable to senile cataracts, a 52-year-old woman and a 90-year-old man; while two women were blind due to the complications of diabetic eye disease, aged 77 and 80 years. The fifth subject was blind due to glaucoma.

Unocular blindness. The prevalence of monocular blindness was 9.8% with 18 of the subjects having

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Table 1. Prevalence (%) of glaucoma, ocular hypertension, cataract and diabetes, brackets indicating the number in each age group.

Age group (years)	No. examined	Glaucoma % (N)	Ocular hypertension % (N)	Cataract % (N)	Diabetes % (N)	Trachoma			
						CS % (N)	CO % (N)	LD % (N)	
30-40	15	—	—	—	—	13 (2)	—	—	—
41-50	29	—	3.4 (1)	10 (3)	10 (3)	59 (17)	7 (2)	—	—
51-60	57	3.5 (2)	7 (4)	53 (30)	19 (11)	65 (37)	3.5 (2)	3.5 (2)	—
61-70	50	4 (2)	10 (5)	86 (43)	18 (9)	82 (41)	14 (7)	2 (1)	—
71-80	25	—	12 (3)	92 (23)	24 (6)	84 (21)	8 (2)	8 (2)	—
81+	8	12.5 (1)	—	100 (8)	50 (4)	100 (8)	—	—	—
Total	184	2.7 (5)	7 (13)	58 (107)	17.9 (33)	68.5 (126)	7 (13)	8 (5)	—

CS=conjunctival scarring; CO=corneal opacities; LD=lid deformities

visual acuity of less than 3/60 in the worse eye. This included six cases of cataracts with an age spread of 61 to 83 years and a mean age of 72.3 years. Four cases were attributable to trauma and had an average age of 60 years, while three subjects had amblyopia with an average age of 63.7 years. Two subjects had unocular blindness due to glaucoma, and were aged 60 and 57 years. Unocular bullous keratopathy was noted in a 70- and an 86-year-old man. There was a 53-year-old woman with a macular scar of unknown origin.

Glaucoma. The prevalence of pre-diagnosed glaucoma (already on treatment) was 2.7% while that of ocular hypertension was 7% (Table 1). The definition of ocular hypertension was intraocular pressure being above 21 mmHg with a normal cup-to-disc ratio and fields. As one would expect, the prevalence for ocular hypertension increases with age. There were no sex or dietary differences. During this study no definite cases of glaucoma were identified. Three cases of narrow angles were found in this population, each with normal intraocular pressure and discs.

Cataract. The overall prevalence of cataract in this population was 58%. There was no statistical difference in the prevalence of cataract between men and women, as well as between vegetarians and non-vegetarians. The prevalence of cataract increases with age, being 10% in the 41-50 year age group reaching 100% in the over 80s (Table 1). In this study 10 eyes were blind due to cataract.

Trachoma. Inactive trachomatous disease was noted in 78.2% of the eyes examined (Table 1). Of these subjects, 68.5% had upper tarsal conjunctival pannus with pannus at the limbus; 7% had central corneal opacities and 2.7% had lid deformities directly attributable to previous trachoma. The prevalence of pterygia was 2.7% in this study.

Macular disease. The prevalence of age-related maculopathy was 3.8% (seven cases) while that of diabetic maculopathy was 1% (two cases). A 53-year-old woman was noted to have a macular scar of unknown origin.

Diabetes mellitus. There were 33 cases of pre-existing diabetes mellitus giving a prevalence of 17.9% (Table 1). All cases of diabetes mellitus were late onset, none were insulin-dependent, and prevalence appears to increase with age. Given the high prevalence of diabetes mellitus in this group we were surprised to find only two cases of diabetic maculopathy which could indicate a high resistance to damage in the retinal vasculature. This is reinforced by the fact that prevalence of pre-existing hypertension was 22.8% but there were no cases of marked hypertensive retinopathy in this study.

Discussion

In this pilot study the prevalence of blindness was 2.7% and none of the five blind subjects were on the blind register. The UK registration figure for prevalence of blindness is about 0.2% while the Royal National Institute for the Blind estimates a prevalence to be at least twice the official figure⁴. Even then the prevalence of blindness in Indians appears to be six to seven times higher than the European population in the UK.

Unocular blindness prevalence of 9.8% is similar to the figures in studies carried out in the Third World, and the same can be said for the prevalence levels of trachoma².

The prevalence of glaucoma in the Baltimore Eye Survey⁴ was less than 2% in whites and five times higher in blacks. In our study the prevalence of glaucoma was 2.7%, indicating a level in between that of two major UK racial groups. The prevalence of cataract at 58% is similar to other surveys in Indian populations such as that by Das *et al.*⁶, but this is four to six times higher than the surveys on a Caucasian population. Similarly the prevalence of diabetes mellitus in Indians appears to be four to six times higher than that in whites.

Although one cannot draw conclusions from such a small and selected sample, the Indian population in the UK may have a much higher prevalence of ophthalmic disease such as cataract and trachoma than the Caucasian population. In order to confirm or refute this, a much larger study is required, both for the planning of prevention of blindness programmes and for the provision of appropriate services in areas with a high proportion of Indians in the population.

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